




# BFU/LLYK

## Woody/Vegetative Debris Management Guidelines

June 2017



## Approval Page

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(Fire and Vegetation Specialist - BFU)

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**Topic Addressed:** Disposal of woody/vegetative debris

### Scope of Application:

This document provides guidance to staff and stakeholders for the disposal of woody and vegetative debris generated through various methods (chipping/mulching, transport out of park and burning). Debris disposal can result in significant ecological and operational impacts. Safety, environmental and visitor impacts must be mitigated during the disposal of woody and vegetative debris.

The method of woody/vegetative debris disposal depends on specific project details. The best method will be determined through direct consultation with the Fire and Vegetation Management Section (FVS).

### Disposal of Timber

All projects that involve the removal of timber from a site must follow the Parks Canada Alberta Region Directive on Surplus Timber (appendix 1).

For projects where timber is not merchantable (i.e. the quality or quantity of timber is too small to offset costs associated with harvesting) or in instances where there is a benefit from the use of timber as firewood, limbed timbers will be transported to a firewood storage/processing facility for use within the field unit. Use, transport, storage and processing of timber for firewood will be approved by the Visitor Experience Manager (or designate) prior to transport.

### Chipping/Mulching/Spreading Debris On-Site

Due to the dry climate in many locations within Banff, Yoho, and Kootenay national parks, chipped/mulched fuel does not decompose rapidly, instead remaining on the ground for extended period of time. Over time, this dry, fine fuel layer represents a significant fire hazard and inhibits natural forest succession processes. As such, chipping/mulching must be spread in an area at a very low application rate.

- Mulching will be limited to as small an area as possible – wherever possible, existing small trees and shrub cover should be left in place.
- Mulch will be spread to a depth of no more than 3 cm.
- Rough mulching (i.e. removing branches but leaving logs intact) is preferable to fine mulch in areas with larger stems (i.e. where small trees are being mulched).
- The distribution of mulch chips will be non-uniform so that native vegetation is not completely covered by mulched material.
- Mulching of Aspen stands has the potential for acid leachate to negatively affect aquatic ecosystems. Mulching of aspen should not occur within 30 m of riparian areas, bogs, lakes, streams or wetlands. This includes ephemeral water features.
- If mulch inadvertently occurs in depths greater than 3 cm or in areas where concerns exist with leaving mulch in place (such as areas with large infestations of non-native vegetation, or where native plants will not regrow within 1 growing season) further restoration efforts will be required during the reclamation.
  - Restoration efforts may include additional raking of mulch or combining mulch with topsoil and seeding areas.
- Large diameter Douglas-fir (>20cm) must be chipped, mulched or destroyed before April 15<sup>th</sup>.
- No mulching will occur within 30 m of a water body or wetland (i.e. streams, rivers, lakes, wetlands) or riparian areas. This includes ephemeral water features.
- No mulching will occur in Zone 1, Special Preservation areas, as per the Park Management Plan





- Areas where mulching is not permitted (i.e. 30 m buffer for hydro features, aspen stands, etc.) will be mapped and monitored during the design stage of the project.
- Parks Canada representatives may assess areas of non-native vegetation infestation to determine appropriate debris management or reclamation to promote native plant growth and discourage further spread or establishment of non-native vegetation.



Debris/Mulch/Chipping acceptable volume this photo shows rough mulching (1-2 pass) treatment

### Coarse Woody Debris

Spreading of medium/coarse woody debris (CWD) on site is allowable at the following specifications:

1. CWD should not be distributed in areas where it would not naturally be present (e.g., shrub and grassland meadows and wetlands where there are no trees being removed do not need to be included). This does not mean that all areas mapped as wetlands would be excluded, as many of these areas are forested. Ground truthing and/or knowledge of on-the-ground conditions is necessary.
2. CWD should not be re-distributed where this would result in damage to sensitive soils/vegetation and/or where extensive mitigation work, (e.g. construction of snow roads), would be required for the sole purpose of CWD re-distribution.
3. CWD should be distributed at an abundance that is in line with the prescription in the table below (Woodley and Forbes, 1997), with abundance and distribution reflective of the surrounding habitat:

Cover Type	CWD abundance/ha
Hardwood	40
Mixedwood	60
Softwood	110





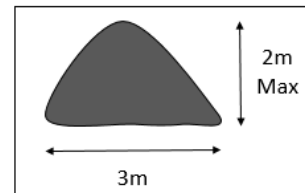


4. To improve aesthetics and promote diversity, the "pieces" of CWD should comprise a wide range of sizes (average diameter at least 10 cm and average length at least 2 m) and tree species reflective of what is naturally present. It should also be patchily distributed within the natural range of variation in surrounding habitat.
5. Where feasible, the CWD scatter should be done as early as possible in the project.

## Debris Pile Burning

### Dimensions and Placement

1. Pile construction should occur in close proximity to tree falling location (unless landing is being used).
2. Maximum pile size is 3 m in diameter and 2 m in height, except on a landing where maximum pile size is 7 m in diameter and 5 m in height.
3. Ensure surrounding live trees will not be scorched or incur stem damage (girdling or burning of bark).
4. Utilize existing or old pile burning locations whenever possible.
5. Limit the number of piles created.



### Approval and Notifications

1. All brush pile burning must be pre-approved by Parks Canada's Fire and Vegetation Management Section.
2. 48hr prior to burning, contact Fire Duty Officer or pre-determined designate for approval.
3. The Fire Duty Officer may specify a call to the local fire department before ignition.
4. Immediately prior to ignition, contact Banff Dispatch (403-762-1470).
5. When the fire is determine to be extinguished, contact Banff Dispatch (403-762-1470).
6. If conditions do not allow for piles to be burned in a timely manner, proponents will be asked to GPS all pile locations for monitoring during the fire season, and/or to remove debris off site if the project has a defined end date. Provide all information to the Fire Duty Officer:

### Conditions:

1. All pile burning operations, including those conducted by parks staff, require a Restricted Activity Permit.
2. Any Parks Canada staff, students, or volunteers conducting pile burning must be properly trained, supervised, and wear appropriate PPE in accordance with the national Safe Work Practice for this activity.
3. Piles will only be burned once curing of green fuels has occurred (at least 1-2 seasons), unless adequate amounts of dead wood/limbs are in each pile to ensure full consumption of materials or a forced air or air curtain system is being used effectively to achieve full consumption.
4. Field unit fire personnel (Fire Duty Officer or designate) will monitoring local venting conditions in order to ensure conditions are conducive to atmospheric venting and smoke dispersal from populated areas. . Exceptions to this may be considered but are dependent on burning methods and location. Parks Canada will use the most representative venting information available to make the decision regarding open air burning for each project.





5. Pile burning after snow melt has occurred will only be completed with the recommendation of the Fire Duty Officer. Areas with exposed mineral soil may reduce risk. Specific conditions may also need to be met in order to for the Fire Duty Officer to recommend burning:
  - a. No adjacent cured fine fuels;
  - b. On days with winds <15 km/h – and at the discretion of FDO depending on forecast wind/weather conditions;
  - c. Low/Moderate fire hazard;
  - d. With the use of forced air burning in gravel areas;
  - e. With the use of air curtain burners in lower risk areas.
6. Once a pile is ignited it must be supervised at all times to prevent escape. Piles may be allowed to smolder at the ground level overnight (in consultation with the Fire Duty Officer), but additional debris must not be added unless the pile is supervised.
7. A method of extinguishment (i.e. water, hand tools or fire extinguisher – depending on pile size) must be on hand at all times.
8. Only woody/vegetative debris may be burned in piles. All other waste materials including painted/treated wood, metals, plastics, and liquids must be disposed of at a proper waste disposal facility. Mixed fuels and hazardous waste cannot be burned, but disposed in accordance with national waste handling and disposal procedures.
9. Only clean fuel will be used to ignite piles. Unknown mixes or 'slag' fuel will not be used to ignite debris piles.
10. Where burn piles are located close to a road or highway, the fire duty officer will determine the need for highway signage indicating the potential for smoke in area with reduced visibility, and that the smoke need not be reported.
11. Where burn piles are located close to communities, the fire duty officer will determine the need to notify the public in general and especially people who are sensitive to smoke of the potential for reduced air quality.
12. In the event of an escaped pile burning fire – contact Banff Park Dispatch immediately.

## **Contacts**

### **Banff Field Unit:**

Fire Duty Officer: 403-763-8025

Fire and Vegetation Management Section: 403-762-1417

### **Lake Louise, Yoho, Kootenay Field Unit**

Fire Duty Officer: 250-342-1059

Fire and Vegetation Management Section: 250-347-6173





## Effects Assessment and Mitigation

Potential Key Effects:	
<p>Wildlife</p> <ul style="list-style-type: none"> <li>• Temporary displacement from habitat/movement corridors</li> </ul> <p>Vegetation and Soils</p> <ul style="list-style-type: none"> <li>• Vegetation trampling/compaction</li> <li>• Collection of plants/wood</li> <li>• Soil compaction</li> <li>• Wildfire</li> </ul>	<p>Aquatic Resources</p> <ul style="list-style-type: none"> <li>• Erosion/sedimentation into Creeks/Rivers</li> </ul> <p>Cultural Resources</p> <ul style="list-style-type: none"> <li>• Potential impacts on underground resources</li> </ul> <p>Visitor Experience/External Relations</p> <ul style="list-style-type: none"> <li>• Smoke, reduced visibility</li> <li>• Smoke, odor</li> <li>• Wildfire risk/safety</li> </ul>
<p><b>Mitigations Measures for Wildlife</b></p> <ol style="list-style-type: none"> <li>1. Ensure site housekeeping is maintained.</li> <li>2. No garbage or other wildlife attractants on site.</li> <li>3. Work will only be conducted during daylight hours to minimize impact on wildlife.</li> <li>4. Wildlife mitigations related to the removal of vegetation are addressed in the Vegetation Removal Guidelines for the Banff Field Unit.</li> </ol>	
<p><b>Mitigation Measures for Vegetation and Soils</b></p> <ol style="list-style-type: none"> <li>1. Project area will be surveyed for any major non-native vegetation issues prior to the start of the project. The Field Unit Fire and Vegetation Management section (FUFVS) will assess the need for pre-project treatment or special measures to prevent the establishment or spread of non-native vegetation.</li> <li>2. Disturbed areas must be raked and seeded at a recommended seeding rate (as per recommendation by FUFVS) with an approved native seed mix in spring under snow-free conditions.</li> <li>3. In certain areas, existing vegetation will be raked into the site for vegetation establishment, or native vegetation will be planted depending on site specific ecosystem requirements.</li> <li>4. If the project area has deep organic soil layers, piles will only be burned when soil moisture is adequate to prevent the fire from burning deeply into the ground resulting in extensive smouldering and holdover potential.             <ol style="list-style-type: none"> <li>a. An option for sites with deep organic layers is to use machinery or hand tool to remove top soil and to burn material directly on the mineral soil. Once pile burning is complete, preserved top soil can be laid over top of the mineral soil again, raked and seeded with approved seed mixes.</li> </ol> </li> <li>5. If organic soil has been sterilized by high intensity fire, it may be necessary to rake adjacent top soil and vegetation onto the site for reseeding.</li> </ol>	



6. Care will be taken to keep piles as small as possible and to limit the number of piles in an area. If needed, larger piles can be made to feed material into smaller piles in order to limit the area needed for reclamation.
7. If a nearby graveled area is available and there is adequate separation from adjacent forested/vegetated areas, a landing with a larger pile can be used. Doing so will minimize impacts to organic soils and limit the need for restoration activities.

#### **Mitigation Measures for Aquatic Resources**

1. Project manager will consult with Field Unit Aquatics Specialist (or designate) during planning process to determine if any aquatic concerns are present
2. If project area is adjacent to or contains a wetland or water body, the FU Aquatics specialist will be consulted with regards to proximity of burn piles to water features. Typically, pile burning operations will not occur closer than 30 m to a water body, but site specific requirements will be determined by the aquatics specialist.

#### **Mitigation Measures for Cultural Resources**

1. A cultural resource impact assessment (CRIA) will be conducted for every project requiring pile burning operations. The Banff Field Unit Cultural Resource Specialist will determine if any underground cultural resources are in the area and whether mitigation measures are required.

#### **Mitigation Measures for Visitor Experience and External Relations**

1. Ensure Banff Park Dispatch (Banff.dispatch@pc.gc.ca/403-762-1470) has been notified on ignition days – prior to ignition and at completion of operation.
2. Ensure “GOOD” Venting Conditions (as per Environment Canada’s ventilation index forecast)
3. Ensure that all adjacent major (TransCanada Hwy) and secondary (local roads or 1A) have adequate signage warning motorists of smoke in area and potential impacts on visibility.
4. For Parks Canada pile burning activities, following the established Fire Information Officer Protocols will be followed. These protocols include, but are not limited to, stakeholder and staff updates, and notification of ignition for the smoke sensitive list.
  - a. For projects with external proponents, project lead agency/contractor will be responsible for disseminating smoke related info following established fire information officer protocols. PCA will assist agencies with messaging if needed.
5. If project is being conducted in high visitation areas (e.g. day use areas, trails, campgrounds) all activities will be done during periods of low visitation (i.e. fall/winter, weekdays).



Appendix I  
**ALBERTA REGION  
DIRECTIVE**

**CANADIAN HERITAGE**

**PARKS OPERATIONS**

**DATE:** April 28, 1994

**SUBJECT:** Disposal of Surplus Timber from Approved Developments

**RELATED DIRECTIVES:** None

**1. DEFINITION**

"Surplus Timber" is defined as timber that is cleared as part of an approved development.

"Timber" means timber as defined in the National Parks Timber Regulations.

**2. BACKGROUND**

Parks Canada does not have a policy on the disposal of surplus timber from approved developments. Neither the National Parks Act nor the National Park Timber Regulations provide any direction on this issue.

Development proposals within the National Parks are dealt with on a case by case basis. Each proposal must undergo an Environmental Assessment and Review Process (EARP) before being approved. It is during EARP that the fate of the timber to be cleared is determined. In the past, surplus timber has been disposed of in one of three ways:

- 1) Cut into firewood and provided free in Park campgrounds;
- 2) Used for construction purposes in the Parks to build such things as signs and backcountry bridges; and,

- 3) Dragged into the backcountry and left to decay.

These solutions were fine when there was a minimal amount of surplus timber but they are no longer sufficient for large developments that produce an excessive amount of surplus timber.

### 3. **SCOPE**

This Directive applies to all National Parks and National Historic Parks within the Alberta Region.

This directive is intended to guide park managers in situations where it is necessary for timber to be removed as a result of an approved development. The disposal of such timber shall be done in a manner that will best serve the park environment.

This directive does not apply to timber that has fallen due to natural processes.

### 4.

#### **TWO-TIERED POLICY**

TIER ONE - Sites altered through crown initiated projects (highways, buildings, fireguards etc...)

Timber cleared from crown initiated projects will be disposed of in the following order:

- 1) Examine park needs.
  - a) Firewood supply
  - b) New signs
  - c) Backcountry bridges
  - d) Have timber cut into rough sawwood and use the lumber for park facility repair or replacement.
  - e) Scientific research considerations (ex. Tree ring analysis)
  - e) Cut the timber into firewood and ship the surplus amounts to other parks.
    - A cost/benefit analysis, on a park by park basis is required to be completed before the next priority may be considered.
- 2) Reduce the Crown contract costs by allowing the contractor to dispose of the timber in lieu of payment.

A professional appraiser can establish a mutually agreed upon appraisal value for the timber or a unit price format could be used with a credit rather than a charge.

- 3) Declare the timber surplus and let the Department of Public Works and Government Services Canada dispose of it.

Revenue generated shall be used to reduce the costs of mitigation, rehabilitation and environmental research required for the crown project. Where revenue generated is in excess of these costs, the funds shall be used to finance projects that directly benefit the park environment, such as the rehabilitation of sensitive areas or support resource management studies. Overall, the environment should receive a net benefit.

#### TIER TWO - Sites altered through privately initiated projects (buildings, etc...)

Timber cleared from privately initiated projects will be disposed of in the following order:

- 1) Examine park needs.
  - a) Firewood supply
  - b) New signs
  - c) Backcountry bridges
  - d) Have timber cut into rough sawwood and use the lumber for park facility repair or replacement.
  - e) Scientific research considerations (ex. Tree ring analysis)
  - f) Cut the timber into firewood and ship the surplus amounts to other parks.
    - A cost/benefit analysis, on a park by park basis is required before the next priority may be considered.
- 2) Parks Canada declare the timber surplus and let the Department of Public Works and Government Services Canada dispose of it.

All revenue generated from the surplus timber must be used to finance projects that directly benefit the park environment, such as the rehabilitation of sensitive areas or support resource management studies. Where revenue generated is in excess of these costs, the funds shall be used to finance projects that directly benefit the park environment, such as the rehabilitation of sensitive areas or support resource management studies. Overall, the environment should receive a net benefit.

It is important to stress that never at any time, whatsoever, should costs related to private development be subsidized by the revenue generated from the surplus timber. Mitigation, rehabilitation or any research costs relevant to the private development must be borne by the outside agency whose development has deemed these measures necessary.

Approved by:

(Gail Harrison for)

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